Psychological Monographs

General and Applied

No. 366
1953

Bass, Wurster, Doll, and Clair

Situational and Personality Factors in Leadership among Sorority Women

By

Bernard M. Bass
Louisiana State University

Cecil R. Wurster
Human Resources Research Institute
Maxwell AFB, Alabama

Paddy Ann Doll
University of Texas

Dean J. Clair
Northwestern University

Price, $1.00

Vol. 67
No. 16

Edited by Herbert S. Conrad

Published by The American Psychological Association, Inc.

Psychological Monographs:

General and Applied

Combining the *Applied Psychology Monographs* and the *Archives of Psychology* with the *Psychological Monographs*

Editor

HERBERT S. CONRAD

Department of Health, Education, and Welfare
Office of Education
Washington 25, D.C.

Managing Editor

LORRAINE BOUTHILET

Consulting Editors

DONALD E. BAIER
FRANK A. BEACH
ROBERT G. BERNREUTER
WILLIAM A. BROWNELL
HAROLD E. BURTT
JERRY W. CARTER, JR.
CLYDE H. COOMBS
JOHN G. DARLEY
JOHN F. DASHIELL
EUGENIA HANFMANN
EDNA HEIDBREDER
HAROLD E. JONES
DONALD W. MACKINNON
LORRIN A. RIGGS
CARL R. ROGERS
SAUL ROSENZWEIG
ROSS STAGNER
PERCIVAL M. SYMONDS
JOSEPH TIFFIN
LEDYARD R TUCKER
JOSEPH ZUBIN

MANUSCRIPTS should be sent to the Editor.

Because of lack of space, the *Psychological Monographs* can print only the original or advanced contribution of the author. *Background and bibliographic materials must, in general, be totally excluded* or kept to an irreducible minimum. Statistical tables should be used to present only the most important of the statistical data or evidence.

The first page of the manuscript should contain the title of the paper, the author's name, and his institutional connection (or his city of residence). Acknowledgments should be kept brief,[1] and appear as a *footnote* on the first page. No table of contents need be included. For other directions or suggestions on the preparation of manuscripts, see: CONRAD, H. S. Preparation of manuscripts for publication as monographs. *J. Psychol.*, 1948, 26, 447-459.

CORRESPONDENCE CONCERNING BUSINESS MATTERS (such as author's fees, subscriptions and sales, change of address, etc.) should be addressed to the American Psychological Association, Inc., 1333 Sixteenth St. N.W., Washington 6, D.C.

COPYRIGHT, 1954, BY THE AMERICAN PSYCHOLOGICAL ASSOCIATION, INC.

Vol. 67, No. 16 Whole No. 366, 1953

Psychological Monographs: General and Applied

Situational and Personality Factors in Leadership among Sorority Women[1]

Bernard M. Bass
Louisiana State University

Cecil R. Wurster
Human Resources Research Institute
Maxwell AFB, Alabama

Paddy Ann Doll
University of Texas

Dean J. Clair
Northwestern University

I. INTRODUCTION

THE PURPOSE of this study was to increase understanding of leadership among sorority women and to increase knowledge of the measurement potentialities of certain new or less well-known assessment procedures. Five kinds of measurements were collected, viz., biographical information, peer ratings, self-ratings, paper-and-pencil test scores, and situational test scores.

The factorial content of some of the specific measurements, such as American Council on Education Q and L scores, was well known; other measurements, such as age and year of education, were considered intrinsically valid. At the other extreme were measures whose content was unknown, such as attempts to assess in a systematic manner the thought processes of subjects by means of the "stimulated recall" procedure of Bloom (7). Thus, on the one hand, we had reference variables about whose factorial composition we were fairly sure; we also had variables such as the Guilford-Zimmerman Temperament Survey scores or leaderless group discussion (LGD) scores, about which we had some previous experimental evidence; and we had a mass of unknowns.

In addition to this exploration into the factorial composition of various measures, we also were in a position to examine the extent to which successful leadership behavior of individuals varied as a function of three situations: (*a*) individual sorority activities, (*b*) discussions among representatives from seven sororities, and (*c*) nonsorority university activities. In addition, study was made of the extent to which successful leadership behavior of individuals was a function of the mode measurement.

The reader will note our failure to

[1] Different phases of this study were carried out by different Louisiana State University graduate students working cooperatively under the direction of the senior author. Miss Paddy Ann Doll was responsible for collecting subjects and administering the personal histories, sociometric questionnaires, and paper-and-pencil tests; Mr. Dean Clair was responsible for the coding of the stimulated recall data; Messrs. Cecil Wurster and Robert McGehee were leaderless group discussion observers. The correlational matrix and factorial analysis were computed by Mr. Wurster with the aid of the IBM department at Louisiana State University. A number of others served on various phases of the project, including Messrs. William Hawkins, Arnold Gebel, and Stanley Klubeck. Financial aid was rendered by the Louisiana State University Graduate Council on Research.

The authors are indebted to Dr. Benjamin Bloom for aid in organizing the stimulated recall procedures.

mention the concepts of criterion, and of validity as evaluated by correlation with a criterion. We feel it would be unwise to label arbitrarily some measures as assessments or predictors and others as appraisals or criteria, since we were not particularly interested in the extent to which we could predict scores on some of the variables if scores on some others were known. McClelland (14) has summarized the rationale of this methodological position.

II. SUBJECTS AND ADMINISTRATIVE PHASES IN THE ASSESSMENT PROCESS

A. Subjects

The seven largest sororities on the Louisiana State University campus agreed to participate in this research project. The total membership of pledges and actives from each of the seven sororities was respectively 67, 53, 47, 46, 45, 41, and 36. Twenty volunteers were obtained from each of the seven sororities. These 140 girls were divided into 20 groups, each containing one representative from each sorority. Their scholastic standing ranged from freshman to senior in the university. The average subject was just under 19 years old (18.97) and had completed 2.16 semesters of college. (The respective standard deviations were .99 and 1.13.)

Before the beginning of the project, the seven sororities were told that the general nature and purpose of the program was to assess potential and actual leadership through psychological measures.

The subjects were motivated to volunteer in two ways: (*a*) each girl was promised that a personal letter would be sent to her discussing her assessment based on the various phases of the research in which she participated, and (*b*) each sorority would be informed as to its standing in relation to the other six sororities. This double incentive was successful in recruiting the necessary volunteers.

B. Administrative Phases

Each of the 20 groups of subjects was subjected to a three-phase testing program.

1. *First phase.* Each group of seven subjects, one subject representing each of the seven participating sororities, was convened for an initially leaderless group discussion of one-half hour. During this first phase, two observers rated the amount of successful leadership activity (LA)[2] each participant displayed during the discussion. Two other observers counted the number of responses each discussant made; this was used as an index of her participation (PN).

2. *Second phase.* The girls were ranked according to the extent to which each had displayed successful leadership behavior during Phase 1 and were given different assignments for the second phase according to their respective ranks attained. The girls ranked second, fourth, and fifth and as many of the girls of rank one, three, six, and seven as had the time, after completing other tasks (5, 12), were administered the Guilford-Zimmerman Temperament Survey. Forty-nine of the subjects were able to complete all ten subtests of the survey, while 76 completed at least the first five subtests.

All 140 subjects completed a series of

[2] Letters are the code assigned the measurement. See Table 1 for all the measurements and their code letters.

sociometric questionnaires concerning their own sorority. Peer ratings, NP, NO, NS, NR, VS, AD, and NI (to be described later), were obtained at this time.

Finally, all subjects filled out a personal history blank and a questionnaire concerning their motivation to be leaders. The measures (described later) which were obtained from this procedure included YR, CA, UA, UL, SL, and SS.

3. *Third phase.* The same group of seven as in the first phase was reconvened and subjected to a second initially leaderless group discussion from which the rating of amount of successful leadership activity (LB) exhibited by each participant was obtained.

The second discussion was recorded and immediately played back to the participants for the purposes of stimulated recall analysis to be described later.

4. *Other measures.* A number of other measures were obtained from records at the registrar's office. These included each subject's scholastic average (PA) and American Council on Education Psychological Examination scores (AQ and AL).

III. THE VARIABLES OF THE STUDY

We will now describe or define each of the variables, data on which were collected in this study.

The variables have been categorized according to the method by which scores for them were obtained. The five modes of data collection were: (*a*) biographical information blanks, (*b*) peer ratings, (*c*) self-ratings, (*d*) paper-and-pencil tests, and (*e*) situational tests. Table 1, a list of the variables and their codes, is provided for easy reference.

A. Biographical Information

Biographical information was collected from school records and from a biographical information blank which all subjects filled out in the second phase between the first and second group discussions (or else, on another day). The seven variables are as follows:

1. *Semesters of education* (YR). The number of semesters of college work completed by a subject.

2. *Chronological age to the nearest birthday* (CA).

3. *Extracurricular, university, nonsorority activity per semester* (UA). Subjects were asked to list the names of all clubs, committees, and organizations they now belonged to or had belonged to on the LSU campus outside of the sorority. In addition, they were asked to indicate the number of semesters they had belonged to each group. The final index used was the total number of semesters of membership mentioned for all groups divided by the number of semesters on campus.

4. *University, nonsorority, leadership activity per semester* (UL). Subjects were asked to indicate the offices they had held or were holding in the organizations they had listed for determining UA. The more than one hundred offices mentioned were assigned weights by five judges from 0 to 4 according to their importance and significance in terms of the extent to which the office-holder of a designated position was a leader. The five judges were experienced student leaders not in the study. UL was obtained by assigning appropriate weights to each office reported by a subject, summing and dividing by the number of semesters the subject had spent on the campus. The last division was performed for the same reason as was given above for UA.

The UL was considered to be a rough estimate of the leadership status—as distinguishable from esteem—of the member at the university outside her sorority. University leadership status was conceived as the relative extent to which the university leadership positions held by a subject are of significance, importance, or value in contributing to the maintenance or progress of the group within which the position is found.

5. *Sorority leadership activity per semester* (SL). This index was derived in the same way as UL, except that the offices that subjects listed were inside instead of outside their sorority. SL was conceived as measuring the extent to which each subject had status at present and in the past in the sorority.

6. *Scholastic point average* (PA). This average or cumulative point-hour ratio was obtained for

each subject from the registrar. In the academic scoring system at LSU, A=3, B=2, C=1, and D and F=0. The sum of the cross products of grades earned for hours taken, divided by hours taken, yielded the point average.

The collapse of D and F into one category served to reduce the variance of this measure somewhat and thus correlations between PA and other measures tended to be somewhat conservative.

7. *Socioeconomic status* (SS). Each subject was asked, at a later date after the assessment had been completed, to indicate her father's occupation and education and also to indicate her own religion. Mentioned occupations were classified and assigned points as follows: professional, managerial, administrative, +3; white collar, sales, clerical, small business, +2; skilled laborer, +1; semiskilled and other, 0. Mentioned parental educational level was scored as follows: college graduate, +3; some college, +2; high school graduate, +1; and eighth grade, 0. Religion was a more difficult category to score because of the peculiarly different status of Catholics in south Louisiana, especially in the larger cities, as compared with most other parts of the United States. It was decided to score Episcopalians, Presbyterians, etc. as 2, Catholics and Methodists as 1, and Baptists and Church of Christ as 0. It is probable that this use of religion as a means of socioeconomic stratification was seriously in error and may have served to negate much of the usefulness of the socioeconomic index, which was the sum of the weights assigned for parental occupation, education, and religion. Furthermore, since the sorority subjects probably represented a severely restricted range in socioeconomic status, the likelihood was low that this index would provide much reliable discrimination.

TABLE 1

A List of the Variables Used in This Study and Their Code Letters

A. *Biographical Information*
- YR —Semesters of education
- CA —Chronological age to the nearest birthday
- UA —Extracurricular, university, nonsorority activity per semester
- UL —University leadership activity per semester
- SL —Sorority leadership activity per semester
- PA —Scholastic point average
- SS —Socioeconomic status

B. *Peer Ratings* (of Own Sorority Sisters)
- NP —Nomination for president
- NO —Nominations for organizer
- NS —Nominations for public speaker
- NR —Nominations for representative

TABLE 1 (*Continued*)

- VS —Visibility
- AD—Overt social adjustment

C. *Self-Ratings*
- NI —Self-esteem
- UM—Motivation to attain university leadership status
- SM —Motivation to attain sorority leadership status

D. *Paper-and-Pencil Test Scores*
1. *American Council on Education Psychological Examination*
   - AQ—Numerical aptitude
   - AL —Verbal aptitude
2. *Guilford-Zimmerman Temperament Survey*
   - ZG —General activity, energy vs. inactivity, slowness
   - ZR —Restraint, seriousness vs. impulsiveness, rhathymia
   - ZA —Ascendance, social boldness vs. submissiveness
   - ZS —Social interest, sociability vs. shyness, seclusiveness
   - ZE —Emotional stability vs. emotional instability, depression
   - ZO —Objectivity vs. subjectivity, hypersensitiveness
   - ZF —Friendliness, agreeableness vs. hostility, belligerence
   - ZT —Thoughtfulness, reflectiveness vs. thoughtlessness, extraversion
   - ZP —Personal relations, cooperativeness vs. criticalness, intolerance
   - ZM—Femininity vs. masculinity of emotions and interest

E. *Situational Test Scores*
1. *Leaderless Group Discussions*
   - LA —Amount of successful leadership activity displayed in the first initially leaderless group discussion
   - LB —Amount of successful leadership activity displayed in the second initially leaderless group discussion
   - PN —Amount of participation or attempted leadership activity in the first initially leaderless group discussion
   - EF —Average efficiency of the two discussions in which subject participated
2. *Stimulated Recall Analyses of Thought Processes*
   - SE —Self-oriented
   - AN—Oriented towards another person or persons
   - GR—Oriented towards groups rather than individuals
   - AP —Relevance to attaining formal group goals
   - CE —Certainty or assuredness
   - DA—Disagreement or agreement rather than neutral
   - SN —Hostile and belligerent
   - PR —Concerned with group processes and dynamics
   - EV —Evaluative

Two raters independently scored the socio-economic status for each subject according to the schedule described above. The correlation between their assigned values was .97.

B. Peer Ratings (of Own Sorority Sisters)

Esteem has been defined elsewhere (4) as the extent to which a member of a group is perceived by the others in the group to contribute (or to be likely to contribute) to the maintenance and progress of the group—regardless of the member's position. Esteem is associated with the concept of meritorious performance.

On the other hand *status* can be regarded as the extent to which any member—regardless of his personal merit—can contribute to the maintenance and progress of his group because of the worth or importance of his position.

It has been shown both deductively and inductively that a member's potential to lead others successfully is a function of his status and his esteem. Therefore it was felt important to obtain estimates of the extent to which our subjects varied on both. Actual offices held (SL) was conceived to be a fairly "pure" measure of sorority *status*. Peer ratings were necessary to obtain adequate measures of sorority esteem.

It was assumed that if members were asked to choose each other for a position of importance to the sorority's maintenance and progress, such as president, the choice would be based primarily on expectations or perceptions of the worth of the possible nominees, *as persons*, to the sorority. Thus, it was expected that the nomination procedure would provide reasonable indices of esteem rather than status. However, it was realized that status and esteem, although conceptually distinguishable, would probably be correlated to some degree.

Since status is much more likely to be a matter of opportunity, seniority, fortuitous circumstances, and other factors unassociated with personal characteristics, it was hypothesized that esteem would provide a necessarily "purer" measure of leadership potential than status per se.

1. *Nominations for president* (NP). During the second phase, each of the subjects was presented a list of all the members of her own sorority, whether or not they were included in the 140 subjects of this study. She was asked to select the 21 (including herself) with whom she was most familiar. She then was requested to indicate the seven from the 21 she would most want to be president or hold some high office in the sorority, and the seven she would least want to be president or hold high office. Each rater thus was forced to rate only those girls with whom she was fairly familiar. It was hoped this would reduce the artifactual tendency of girls to be selected or rejected merely on the basis of visibility. Any remaining correlation between esteem and visibility would then have to be attributed mainly to elements other than measurement contamination.

Scores for each of the 335 members of the seven sororities were obtained in the following manner: Each ratee was credited with two points every time someone most wanted her for president, one point when in the selected 21 and in neither the top nor bottom seven in demand, and no points when chosen as least wanted for the presidency. Her total points were divided by the number of raters who placed her in the "21-most-familiar" category. Since no two members of the same sorority ever appeared together in a group discussion, peer ratings were free of contamination which might have occurred if any raters had had the opportunity of observing those they rated in the leaderless group discussion.

Table 2 shows the estimated reliabilities for NP for each of the seven sororities and the number of ratees per sorority. To obtain these reliability estimates, the twenty raters of a given sorority were split into two samples and ratees' NP scores based on ten raters were correlated with their scores based on the other ten and corrected by the Spearman-Brown formula. Table 2 shows that the estimated reliabilities for NP for each of the seven sororities were .85, .85, .78, .65, .90, .73, and .85 respectively. The median of .85 reflected the large number of raters upon whose judgment each rating score was based.

2. *Other nominations.* NO, NS, and NR were obtained in the same way as NP. All four were

concerned with the extent to which each subject was nominated by her sorority sisters for positions of significance to the sorority's existence. Hence, all four were conceived as relevant estimates of the sorority leadership potential of the subjects on the assumption of the validity of the hypothesis that individual differences in esteem in a group accurately forecast differences in future leadership activity.

NO concerned the nomination of subjects who "promote and organize the sorority's activities"; NS involved selection of members to address an audience of sorority alumnæ; NR concerned the choosing of peers to represent the sorority at a national convention.

Table 2 displays the corrected split-half reliabilities of NO, NS, and NR.

3. *Visibility* (VS). Visibility was the extent to which a subject was well known in her sorority. This measure was the number of times a ratee was placed with the 21 sorority members a rater was willing to nominate or reject during the voting to obtain NP, NO, NS, and NR. Reliability estimates were obtained in the same manner as for the preceding variables and are shown in Table 2. It was hypothesized that visibility would be associated with esteem. That is, a person would have to be well known in order to be selected for positions of importance.

4. *Overt social adjustment* (AD). During the second phase, a list of the members of her own sorority was given to each subject along with the following directions:

"Below is a list of all your sorority sisters. Strike out your own name and the names of all girls you do not know at all.

"Next, indicate which of the following descriptions generally applies to each name by placing the letter of the description which applies in front of each name. If you are in doubt about some letter assignment, place a circle around the letter or letters which you assign with uncertainty.

"Assign one letter to all the appropriate names before proceeding to assign the next letter."

Letter Code

A—idealistic, cooperative, adventurous, grateful, soft-hearted, friendly, enthusiastic, reasonable, trustful

B—timid, withdrawn, thankless, hostile, secretive, irrational, pessimistic, unhappy, suspicious, short-tempered, obstructive

C—persevering, practical, self-controlled, calm, patient, loyal, honest, mature, deliberate

D—quitting, evasive, excitable, impatient, irritable, impulsive, unreflective, immature

E—boastful, conceited, assertive, headstrong, exhibitionist

F—slipshod, conscienceless, simple, undependable, absent-minded, slow, quitting, uninquiring

G—thoughtful, analytical, wide interests, conscientious, sophisticated, intelligent, independent mind

The number of B's, D's, E's, and F's assigned a ratee by those that rated her was subtracted from the A's, C's and G's and divided by the number of persons who rated her. The clusters represented seven surface traits obtained by Cattell (8) by factorial methods. It was assumed that these observable characteristics had at their roots a common source trait of social adjustment. The socially well-adjusted girl was thought to manifest A, C, and G traits while the socially maladjusted subject was thought more likely to exhibit B, D, E, and F characteristics.

C. Self-Ratings

Three self-ratings were obtained.

1. *Self-esteem* (NI). This measure was the sum of the +2 and +1 categories into which each subject assigned herself on NP, NO, NS, and NR. It was thought to provide an estimate

TABLE 2

Corrected Split-Half Reliabilities of NP, NO, NS, NR, VS, NI, UM, and SM, by Sorority

Variable	*N*	Sorority							Mdn
		A	B	C	D	E	F	G	
NP	335	.85	.85	.78	.65	.90	.73	.85	.85
NO	335	.84	.94	.88	.85	.84	.77	.85	.84
NS	335	.83	.90	.83	.81	.73	.73	.60	.81
NR	335	.86	.74	.78	.74	.83	.77	.65	.77
VS	335	.85	.98	.74	.84	.63	.79	.89	.84
NI	140	.67	.80	.77	.71	.68	.68	.75	.71
UM	140	.78	.86	.84	.93	.94	.97	.80	.86
SM	140	.87	.59	.82	.93	.92	.91	.84	.87

of the subject's self-esteem—the extent to which she regarded herself as of worth to her sorority regardless of her present position. By comparing each subject's self-assignments on NP and NO with those on NS and NR, an estimate of the reliability of NI was obtained and corrected, sorority by sorority (see Table 2). The median reliability was .71.

2. *Motivation to attain university leadership status* (UM). During the second phase, all 140 subjects were administered a questionnaire similar to the following:

"For each of the following university offices, please indicate your true feelings by placing next to the office the number of one of the five statements listed below that best describes it."

1. I would not serve even if I were drafted for the office.
2. I would serve only if drafted for this office.
3. I don't care whether or not I am elected or appointed to the office.
4. I should like to be elected or appointed to the office.
5. I would try my hardest to be elected or appointed to the office.

____Coed vice-president
____Student president of your college
____Any office in your college
____Student council representative
____President of your class
____High officer in any honorary organization
____High officer in a scholastic organization
____A.W.S. officer
____Dormitory officer
____Purple Jackets officer
____YWCA officer
____Officer in religious organization
____Interdormitory Council member
____Honor Court member
____Officer of intersorority group
____Officer in Panhellenic group
____Officer in professional club or group

The sum of all assigned numbers was conceived as an estimate of motivation.

Odd-even reliability corrected by the Spearman-Brown formula for each of the seven sororities is displayed in Table 2. The median reliability of .86 was considered satisfactory. It was hypothesized that many indices of leader behavior such as that exhibited during the leaderless discussions would be a function of motivation to be a campus leader.

3. *Motivation to attain sorority leadership status* (SM). This measure was obtained in the same manner as was UM. The sorority offices listed were as follows:

____President
____Vice-president
____Secretary
____Treasurer
____Pledgemistress
____Historian
____Scholastic chairman
____Membership chairman
____Panhellenic representative
____Sergeant-at-arms
____Magazine chairman
____Activities chairman
____Athletic chairman
____Parliamentarian
____Reporter, press chairman
____Social service chairman
____Social chairman
____Cultural program chairman

The obtained median reliability of .87 was considered adequate. (See Table 2.)

D. Paper-and-Pencil Test Scores

Aptitudes and personality traits were assessed by well-established paper-and-pencil procedures.

The American Council on Education Psychological Examination provided two aptitude assessments and the Guilford-Zimmerman Temperament Survey provided ten personality measurements.

1. *Numerical aptitude* (AQ). This was the Q score in terms of local norms obtained from the ACE. These scores were obtained from a campus bureau responsible for testing entering freshmen or from appropriate agencies of other colleges from which subjects had transferred. ACE scores were collected for 136 subjects by these means.

2. *Verbal aptitude* (AL). This was the L score of the ACE. Both L and Q were considered to have satisfactory reliabilities and to be indicative of verbal and numerical aptitude. (For a survey of the literature on the ACE the reader is referred to Super [18].) These measures were included in this investigation because of the large number of studies available which suggested that the leaders in many kinds of social situations tend to surpass nonleaders in intellectual capacity. Moreover, the L score had been found correlated with leaderless group discussion behavior by Wurster and Bass (22) and by Bass and Coates in studies of leadership in ROTC.

3. *Guilford-Zimmerman Temperament Survey scores.* It was possible to obtain five subtest scores, ZG, ZR, ZA, ZS, and ZE, for 76 of the 140 subjects and all ten subtest scores for 49 on the Guilford-Zimmerman Temperament Survey. Unfortunately there was some bias in the selected samples. Those who scored highest or lowest in LGD score in the first of each of the

discussions (LA) were administered Rorschach tests or personal interviews during the second phase and were not generally available to take the Temperament Survey. Correlations between LA and the Temperament scores were thus attenuated slightly by the restriction in range in LA.[3] In addition it is expected that some slight attenuation may have appeared in the correlation between Temperament scores and any variables which correlated with LA as well as between Temperament scores which correlated with LA. No corrections for restriction in range were made, however, because the effects of the restriction were small and usually not direct.

The Guilford-Zimmerman Temperament Survey was selected to provide a battery of personality reference vectors for the factor analysis since the battery had been constructed by factor analytical methods. Some evidence was available concerning the battery's factorial and external validity. Adequate reliabilities were reported. Moreover, the inventory had been developed and standardized on a college population (11).

The definitions of the ten subtest scores are displayed in Table 1 and need not be repeated here.

It was recognized that the large amount of missing data in these tests would make correlations between them and other variables less reliable. The choice the investigators faced was eliminating them from consideration and losing these important means of connecting the results of our study to a large mass of personality literature, or taking a chance by assuming that the obtained correlations were reasonable estimates of what they would have been had there been no selective missing data. The investigators decided to risk being in error. However, the reader should keep in mind these imperfections when evaluating the results of the factor analysis.

E. Situational Test Scores

1. *Leaderless Group Discussion*

Following is a description of the means by which each measure was obtained.

a. Amount of successful leadership activity displayed in the first initially leaderless discussion (LA). Each group of seven girls was subjected to two initially leaderless discussions, one in the first phase of the assessment program and one in the third phase. The seven girls each represented a different sorority and were relatively unacquainted with each other. This was done to make the leaderless discussion initially free of a status hierarchy. Bass and Wurster (6) have shown that leaderless discussion behavior is closely associated with any previous status structure which may exist among the participants. The extent to which the leaderless group discussion was free of such influence was demonstrated by the correlation of .10 which was found between sorority leadership status (SL) and leaderless discussion performance (LA). It was assumed that LGD performance would be associated primarily with permanent personality characteristics rather than the more situationally derived status. Thus, continued *successful* leadership activity displayed in the first leaderless group discussion could be attributed in large part to the esteem (perceived ability to contribute to the group's effectiveness) gained by each of the participants during the discussion. Esteem, in turn, would depend more on personal factors such as verbal ability and social boldness rather than on factors associated with participants' positions in their respective sororities, such as length of time in the sorority.

Since sorority status could undoubtedly also be associated with esteem, we would expect some correlation between sorority status and leaderless discussion success, but this would occur because both would be associated with some common personal factors such as social maturity.

The initially leaderless group discussion was administered as follows:

A designated group of seven girls was arranged in the shape of an inverted V with two well-trained observers seated at the open end. The subjects were given a list of questions such as "Should coeds marry while still in college?"; "Are girls' schools better than coeducational colleges?"; or "On what bases should sorority pledges be selected?" They were directed to select one question and to discuss it without help from the observers for 30 minutes to arrive at a set of conclusions about the question.

Fifty-two questions were randomly divided into four lists, only one of which was presented at each discussion. The questions for discussion were designed to be stimulating enough to provide for a full 30-minute discussion and to be of a general enough nature that it could be assumed that all participants had a fairly equal fund of knowledge about each issue. This helped keep at a minimum the effects of knowledge specific to a given situation as a source of individual differences in the attainment of leadership status.

LA was obtained by means of observers' ratings. The senior author has defined in detail elsewhere (4) the concept of leadership as used in this study. Leadership is conceived to be an interaction between any two or more members

[3] The reader is referred to Bass, McGehee, *et al.* (5) for a more detailed account of this restriction and its effects.

of a group. For two members, A and B, a *successful* leadership interaction takes place when B changes behavior in a direction desired by A as a consequence of A's act. If B fails to change, A's act is unsuccessful or *aborted*. For the group as a whole, the amount of successful leadership activity by one member, A, can be measured by the extent to which his behavior results in the movement of his group in a shared direction—that is, A's successful leadership is the extent to which the group is able and willing to change in a direction desired by A.

Two trained observers independently indicated on a five-point scale the extent to which each participant of an initially leaderless group discussion displayed seven highly intercorrelated behaviors (av. $r = .85$), all of which were deemed items indicative of the extent to which each participant displayed successful leadership, i.e., moved her group in a shared direction. The seven items were:

1. She was effective in saying what she wanted to say.
2. She offered good solutions to the problem discussed.
3. She showed initiative.
4. She clearly defined the problem.
5. She motivated others to participate.
6. She influenced the participants.
7. She led the discussion (a summary rating).

A participant's LA score was the sum of points received for each of the seven items of behavior from both observers. The correlation between the two observers when corrected by the Spearman-Brown formula gave an estimated reliability of .91 for LA. The correlation of .75 between LA and LB, the same measurement made during the second discussion, was an estimate of both measures' test-retest reliabilities in this study.

b. Amount of successful leadership activity displayed in the second initially leaderless group discussion (LB). This was obtained during the second LGD in the same way as LA. LB had a corrected split-rater reliability of .84.

c. Amount of participation or attempted leadership activity in the first initially leaderless group discussion (PN). Two observers, other than those whose estimates were used to obtain LA, recorded the number of responses emitted by each discussion participant. PN is the simple sum of all these recorded responses. PN was included in the study because it provided a means for testing a number of hypotheses concerning attempted, successful, and aborted leadership behavior. A number of earlier studies (1, 2) have disclosed the existence of correlations ranging from .65 to .91 between various indices of participation and tendency to succeed as a leader.

It was assumed that almost all participation in a highly ambiguous social situation could be considered attempts to change the perception or behavior of others, hence almost all participation in such situations could be considered *attempted* leadership.

Attempted and successful leadership activity correlate by definition (4), for all successful activity must be attempted. But the reverse does not hold. Attempted leadership activity may be either successful or aborted. Thus, the part-whole correlation between the two may be regarded as expressing a nominal rather than a postulational or empirical relationship.

The mean number of responses per subject was 149.6. The correlation between the two observers gave an estimated split-half reliability of .95 for PN.

d. Discussion efficiency. Two observers rated the extent to which each of the 20 pairs of discussions was efficient—i.e., attained the goals set forth in the problem selected by the group with a minimum waste of time and effort. The average correlation between the two observers' five-point ratings of efficiency for the 20 first-phase discussions and second-phase discussions was .75. The mean efficiency of the two discussions in which a subject participated was assigned to her as a discussion efficiency score. It was hypothesized that variations in discussion efficiency would be associated with various measures of individual differences.

2. *Stimulated Recall Analyses of Thought Processes*

a. Method. The stimulated recall analyses were based on a technique developed by Bloom (7). The second initially leaderless discussion was recorded on tape. As the discussion progressed, the senior investigator made note of ten "critical points" along the way (e.g., a long silence occurred, a dogmatic assertion was made, a question was posed). The tape recording of the discussion was played back immediately to the girls. Each time the recording was stopped at a critical point, the subjects wrote down what they believed their thoughts were at that point during the discussion.

b. Content analysis. Content analyses of the protocols of each subject were made by two trained raters. The mode of analysis was "tailor-made" for the present study, although many of the categories had been used earlier by Bloom.

Since productivity varied considerably because a subject could report more than one thought per critical point (and many did), and since productivity per se was not of prime concern in the analysis, the number of thoughts coded in a particular manner was converted to a percentage of the total number of thoughts expressed. Each thought was classified into a

number of different categories which were not necessarily mutually exclusive.

c. Indices. Listed below are each of the final indices which were obtained from the analysis. Estimates of the reliability are either based on the correlation (corrected by the Spearman-Brown formula) between two raters' independent categorizations of a random sample of 70 of the 140 protocols, or are mean estimates.

1. Self-oriented thoughts (SE), $r=.82$.
2. Thoughts oriented toward another person or persons (not groups) (AN), $r=.76$.
3. Thoughts oriented toward groups rather than individuals (GR), $r=.82$.
4. Thoughts relevant to attaining formal group goals (AP) $r=.56$.
5. Thoughts certain or dogmatic (CE), $r=.67$.
6. Thoughts approving or disapproving rather than neutral (DA), $r=.64$.
7. Thoughts hostile or belligerent (SN), $r=.68$.
8. Thoughts concerning group processes, group dynamics, interaction among persons (PR), $r=.50$.
9. Thoughts evaluative (EV), $r=.50$.

IV. RESULTS

Matrix of intercorrelations. Pearson product-moment correlations were computed among all 41 variables. The resulting matrix of correlations among all except the stimulated recall variables is displayed in Table 3. Table 4 shows the

TABLE 3

INTERCORRELATIONS AMONG THE ASSESSMENT VARIABLES

Variable	Biographical Information							Peer-Ratings						Self-Ratings		
	YR	CA	UA	UL	SL	PA	SS	NP	NO	NS	NR	VS	AD	NI	UM	SM
YR		74*	60	43	41	08	03	23	28	23	27	19	21	03	−04	−23
CA			53	41	33	11	00	20	27	23	24	16	25	10	−02	−17
UA				62	36	18	02	28	37	33	34	30	27	18	03	−16
UL					23	27	−12	35	35	43	38	23	29	18	04	−17
SL						22	−01	48	55	49	55	44	25	20	09	−12
PA							10	29	24	32	22	16	33	14	−06	−15
SS								00	−03	−09	−13	−03	00	−09	−06	−04
NP									77	80	82	48	65	30	15	00
NO										76	78	59	53	39	07	−06
NS											90	57	61	40	17	−01
NR												58	61	34	14	00
VS													34	25	00	−19
AD														17	16	−03
NI															21	13
UM																55
SM																
AQ																
AL																
ZG																
ZR																
ZA																
ZS																
ZE																
ZO																
ZF																
ZT																
ZP																
ZM																
LA																
LB																
PN																
EF																

* Correlations in boldface are significant at the 1 per cent level of confidence. Decimal points have been omitted.

intercorrelations among the stimulated recall variables. To save space, the correlations between the stimulated recall variables and the others have been omitted since all but two were not significant at the 1 per cent level of confidence.

The factor analysis. The matrix of intercorrelations was factored by means of a group clustering method of multiple-factor analysis outlined by Cattell (9). The centroid axes were rotated to psychologically meaningful positions and to as simple a structure as possible. Orthogonality was maintained between all rotated factors for reasons which will be cited later, although an oblique solution for the first two factors would have been superior.

Table 5 shows the 11 factors which remained after rotation. The loadings of variables on the eleventh factor were so small upon completion of rotation that this last factor was considered to account for a negligible amount of the common variance among the measurements.

The communality of each assessment is shown, together with the variance specific to the variable where it was possible to obtain reliability estimates from the data.

TABLE 3 (*continued*)

(EXCEPT THE STIMULATED RECALL INDICES)

ACE Scores		Guilford-Zimmerman Temperament Survey Scores										Situational Test Scores			
AQ	AL	ZG	ZR	ZA	ZS	ZE	ZO	ZF	ZT	ZP	ZM	LA	LB	PN	EF
−06	06	09	11	−21	−08	10	19	14	−16	10	11	18	11	12	27
−07	03	12	10	−18	−06	08	13	16	02	03	02	20	13	12	27
13	04	17	07	02	14	08	−01	−03	−07	25	01	32	21	27	27
15	08	27	02	27	16	21	30	15	−10	18	18	36	25	27	28
07	−08	11	15	−29	06	20	14	09	−11	−03	16	10	10	07	20
47	33	−01	33	10	−22	04	00	−08	40	06	03	31	25	26	07
−02	21	03	22	00	02	29	08	08	−03	26	26	03	−04	−08	06
13	−03	20	12	−05	02	08	25	29	00	24	14	21	14	10	08
05	02	12	06	16	21	03	08	12	−13	22	17	33	25	19	12
18	02	−01	02	04	04	11	18	25	−18	15	09	36	27	21	12
15	09	09	10	−08	07	09	20	21	−20	21	14	27	21	18	10
09	−05	−01	02	10	17	09	−14	−01	−08	12	−08	24	18	14	14
12	−02	−04	12	−18	−24	−01	41	39	02	15	−04	28	19	11	19
04	−07	−06	−05	14	30	14	−04	01	−02	22	26	29	31	21	15
−14	−20	−15	−11	−01	−10	−12	15	−02	−02	11	18	−03	00	−11	04
−22	−10	−07	−19	16	−06	−04	25	−05	−06	27	22	−07	−05	−10	−06
	45	00	27	−09	−34	07	−19	−12	36	−19	09	17	18	21	06
		−14	26	04	−14	14	07	−02	19	05	03	35	31	21	01
			−02	40	49	28	−07	−13	−09	−13	08	13	23	21	−03
				−19	−15	11	05	20	34	−23	−21	16	09	00	07
					68	34	−06	−26	−08	−01	−04	37	42	35	04
						27	−04	−17	−14	−01	−03	22	14	17	00
							45	29	−11	−01	25	16	15	05	00
								57	−27	30	38	−04	−09	−31	06
									−07	05	16	−16	−16	−12	−05
										−24	−15	13	03	−09	−15
											−08	10	−11	−10	30
												02	−05	01	−56
													75	77	12
														60	12
															−03

TABLE 4

INTERCORRELATIONS AMONG THE STIMULATED RECALL VARIABLES

	SE	AN	GR	AP	CE	DA	SN	PR	EV
SE		06	−01	**38***	**29**	**25**	−05	−06	**39**
AN			−09	**−35**	**−30**	02	**45**	**24**	−16
GR				12	**21**	**25**	**−25**	**−73**	−07
AP					**46**	**46**	−34	−12	**48**
CE						**54**	−05	**−28**	**36**
DA							08	−13	**36**
SN								**33**	00
PR									11
EV									

* Correlations in boldface are significant at the 1 per cent level. Decimal points have been omitted.

TABLE 5

FINAL ROTATED ORTHOGONAL FACTOR MATRIX

(Decimal points have been omitted.)

Variable	Factor											h^2	s^2	r_{tt}
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI			
YR	24	68	−07	−05	02	08	03	−07	−01	00	01	54		
CA	22	65	−01	−01	04	03	03	−04	−09	03	−03	49		
UA	31	57	12	−06	04	−03	09	−02	−09	−05	−03	46		
UL	32	44	25	01	07	19	05	00	−03	03	07	41		
SL	52	28	−06	01	−01	06	02	−01	01	06	−04	36		
PA	26	06	04	05	42	−07	17	−04	03	03	03	29		
SS	−05	02	01	−05	07	21	02	−03	11	03	−14	09	89	98
NP	73	12	03	05	01	12	−02	−01	04	06	−02	57	28	85
NO	72	15	17	04	01	01	04	01	05	08	00	58	27	85
NS	76	11	05	01	03	10	10	−07	01	03	01	62	19	81
NR	82	11	04	01	03	09	03	13	02	01	−01	71	19	90
VS	54	09	19	02	−02	−07	05	09	−10	−02	01	36	48	89
AD	54	11	−11	05	06	14	02	01	−07	00	00	35		
NI	31	02	18	02	−03	01	14	17	−23	03	−02	23	48	71
UM	12	−02	−11	00	−15	−08	−01	48	06	−03	03	29	49	78
SM	−02	−18	−01	03	−15	−07	00	48	13	−14	00	33	54	87
AQ	10	07	05	00	43	−09	08	−12	03	05	−06	24		
AL	−01	05	04	03	36	09	29	−09	01	06	−08	25		
ZG	07	14	43	−05	−10	02	03	−08	−01	00	05	23		
ZR	09	07	−04	07	28	04	05	−11	−10	06	−09	14		
ZA	−06	−10	65	07	−02	02	13	11	−05	23	06	53		
ZS	05	05	57	−10	−26	04	03	−08	08	−07	05	43		
ZE	09	09	29	05	06	36	−01	−04	18	−13	14	31		
ZO	11	16	−10	−03	03	59	02	−22	10	02	−02	46		
ZF	21	06	−21	−04	−05	54	02	−02	02	−03	−04	39		
ZT	−02	−08	−08	02	31	−13	06	−03	00	09	−04	14		
ZP	16	10	−08	−08	−14	18	14	20	01	−06	05	17		
ZM	11	06	00	23	03	33	00	−19	48	−06	13	47		
LA	24	18	39	−04	21	01	51	02	−03	01	01	55	20	75
LB	18	10	40	01	19	01	36	−03	−03	02	05	37	38	75
PN	12	14	39	−08	16	01	45	−05	03	06	00	43	52	95
SE	09	−18	−01	40	08	−01	−10	−04	02	02	05	22	60	82
AN	03	13	03	00	06	−08	05	00	−19	31	−24	22	54	76
GR	−04	01	25	07	−19	07	−02	01	−01	59	03	46	36	82
AP	00	−09	−09	54	−02	03	00	01	06	15	−19	37	19	56
CE	−05	01	−05	46	−05	−04	−06	−01	−08	−11	23	30	37	67
DA	07	07	−08	50	−03	06	−07	−01	05	−21	−06	33	31	64
SN	06	02	03	08	08	−11	−07	−08	03	31	−29	22	46	68
PR	09	02	−02	−11	20	−06	06	−08	01	64	−04	49		
EV	04	03	−04	50	16	−02	04	−01	16	06	01	31		
EF	11	28	00	05	08	−12	−03	00	−48	03	04	35	40	75

V. CONCLUSIONS

A. The Factors

We will first describe each of the 11 factors which emerged from the analysis in terms of variables with highest loadings on the respective factors. Then we will consider the factorial composition of each of the variables of central interest. Wherever possible we will attempt to indicate the practical or theoretical significance of the results as they are presented.

1. *Factor I: Sorority Leadership Potential*

Seven variables had loadings above .50 on Factor I. Four (NP, NO, NS, NR) were measures of sorority esteem, two (VS, AD) were closely associated with esteem, and one (SL) was a measure of present and past status in the sorority. Much inductive and some deductive support exists to maintain the validity of the two hypotheses: (*a*) the higher one's esteem, the higher will be one's future leadership activity, and (*b*) the higher one's status, the higher will be one's future leadership activity (4). Thus, all seven variables had in common an association with future sorority leadership activity. Sorority Leadership Potential was selected to denote the common underlying factor which differentiated subjects in their future leadership activity.

Variable	*Loading on Factor I*
NR—Nominations for sorority representative	.82
NS—Nominations for public speaker	.76
NP—Nominations for president	.73
NO—Nominations for organizer	.72
VS—Visibility in sorority	.54
AD—Overt social adjustment	.54
SL—Sorority leadership activity per semester	.54

This result corroborated Wherry and Fryer's isolation of a "pure" leadership factor based on buddy ratings (19) since it will be noted that all measures but SL were peer ratings. It is fortunate that our status measure, actual sorority leadership activity per semester, SL, provided a means of "anchoring" all the other variables; otherwise we would have cause to fear that Factor I was merely a measure of halo, reputation, or popularity, without reference to leadership potential.

2. *Factor II: University Experience and Activity*

Four variables defined this factor, which appears to be determined primarily by the length of time a subject had been at the university and the extent to which a subject engaged in extracurricular activities and leadership activities outside the sorority.

Variable	*Loading on Factor II*
YR—Semesters of education	.68
CA—Age to the nearest birthday	.65
UA—Extracurricular university activity per semester	.57
UL—University leadership activity per semester	.44

It is interesting to note that the loadings of the defining variables of Factors I and II could have been raised appreciably by rotating to an oblique solution in which there would have been a correlation of .57 between Factors I and II and where the factors would have remained the same in composition. This oblique solution was not used since an orthogonal structure obtained among all the other factors and the oblique solution would not have materially altered any of the factor loadings of the other variables.

3. *Factor III: Ascendance and Sociability*

Two variables, ZA and ZS, defined Factor III although six variables correlated .39 or higher with the factor. The factor appeared to resemble The Ohio State Leadership Studies factor "initiation of structure" (10, 12). The reader should note that these loadings would undoubtedly have been higher had the

sample not been restricted to sorority women.

Variable	*Loading on Factor III*
ZA—Ascendance & social boldness vs. submissiveness	.65
ZS—Social interest & sociability vs. shyness & seclusiveness	.57
ZG—General activity & energy vs. inactivity & slowness	.43
LB—Amount of successful leadership activity in the second leaderless group discussion	.40
LA—Amount of successful leadership activity in the first leaderless group discussion	.39
PN—Amount of participation or attempted leadership activity	.39

4. *Factor IV: Critical, Relevant Thinking*

This was the first "stimulated-recall" factor to emerge. It appears to involve the extent to which subjects tended to think critically and with relevance to the issues at hand. Women who did so appeared at the same time to be somewhat self-oriented, yet sure of themselves in their thoughts. Factor IV was independent of Group Process Thinking, Factor X.

Variable	*Loading on Factor IV*
AP—Thoughts relevant to attaining formal group goals	.54
DA—Disagreement or agreement rather than neutral	.50
EV—Evaluative thinking	.50
CE—Certain rather than doubtful thinking	.46
SE—Self-oriented thinking	.40

5. *Factor V: Intellectualism*

It is necessary to consider loadings as low as .31 in order to define Factor V, which appears to involve scholarship, intelligence, and the tendency to be thoughtful and reflective.

Variable	*Loading on Factor V*
PA—Scholastic point average	.42
AQ—Numerical aptitude	.43
AL—Verbal aptitude	.36
ZT—Thoughtfulness & reflectiveness vs. thoughtlessness & extraversion	.31

6. *Factor VI: Freedom from Neuroticism*

This factor involved the lack of tendency of subjects to be emotionally unstable, hypersensitive, and hostile according to the results of the Guilford-Zimmerman inventory.

Variable	*Loading on Factor VI*
ZO—Objectivity vs. subjectivity & hypersensitiveness	.59
ZF—Friendliness, agreeableness vs. hostility, belligerence	.54
ZE—Emotional stability vs. emotional instability, depression	.36

7. *Factor VII: Verbality*

This factor appears to concern primarily variations among subjects in discussion participation or the tendency to attempt leadership activity in initially leaderless group discussions (PN); to be successful as a discussion leader (LA, LB); and to be high in verbal aptitude (AL).

The naming of this factor was partly based on the lack of correlation of non-discussion leadership or ascendancy variables or of discussion efficiency with it. The part-whole nature of the correlation between LA and PN was kept in mind in arriving at the meaning of this factor; that is, to be successful as a leader, one must attempt leadership acts, or talk. Conversely, to be permitted and to desire to continue to talk, one must exhibit some success as a leader in this situation. Another name for this factor might have been "discussion participation."

Variable	*Loading on Factor VII*
LA—Amount of successful leadership activity in the first leaderless group discussion	.51
PN—Amount of participation or attempted leadership activity	.45

LB—Amount of successful leadership activity in the second leaderless group discussion	.36
AL—Verbal aptitude	.29

8. *Factor VIII: Motivation to Increase Leadership Status*

This factor was a "doublet," based on the correlation between UM and SM.

Variable	*Loading on Factor VIII*
UM—Motivation to attain university leadership status	.48
SM—Motivation to attain sorority leadership status	.48

9. *Factor IX: Feminine Inefficiency*

This "doublet" was somewhat of a surprise. It appears to confirm cultural stereotypes about feminine ineffectiveness. Discussions among highly feminine women tended to be less effective than those among women more masculine in attitudes and in interests.

Variable	*Loading on Factor IX*
ZM—Femininity	.48
EF—Discussion effectiveness	—.48

10. *Factor X: Group-Process Thinking*

This "doublet" concerned variations in the tendency of discussion participants to focus their thoughts on the group process, or the group dynamics.

Variable	*Loading on Factor X*
PR—Thoughts concerned with group processes and dynamics	.64
GR—Thoughts oriented toward groups	.59

11. *Factor XI: Withdrawal-from-the-Field Thinking*

The last factor, XI, appeared to have very slight loadings on three stimulated-recall variables; if these are not mere chance relations, a factor may exist which denotes a tendency to "withdraw from the field." The loadings are too low to be anything but suggestive.

12. *Summary of Loadings*

In summary, the 11 factors which emerged in this analysis which accounted for most of the common variance in the basic 41 variables of the assessment program were:

I. Sorority Leadership Potential
II. University Experience and Activity
III. Ascendance and Sociability
IV. Critical, Relevant Thinking
V. Intellectualism
VI. Freedom from Neuroticism
VII. Verbality
VIII. Motivation to Attain Leadership Status
IX. Feminine Inefficiency
X. Group-Process Thinking
XI. Withdrawal-from-the-Field Thinking

The relatively large amounts of specific variance remaining following the extraction of 11 factors was due primarily to the fact that the assessment program included a fairly wide assortment of measurements from real-life situations, quasi-real situations, and paper-and-pencil tests.

To some extent, "measurement factors" emerged. That is, some factors tended to contain a cluster of variables based on the same type of measurement, namely, Factors I, II, IV, VI, VIII, and X. Moreover, the sample was highly restricted. Therefore, the correlations within the matrix were probably significantly attenuated, reducing the size of the communalities, h^2. The size of the communalities which would be found for the same variables among a general population of late adolescents of both sexes and more varied education would probably be higher.

B. Factorial Composition and Correlates of Leadership and Associated Variables

1. *Biographical Information*

a. Semesters of education and *age* were correlated sufficiently highly with each

other ($r = .74$) to be considered simultaneously. Both were originally included because it was thought that differences might emerge in leadership behavior which could be attributed to scholastic acceleration or retardation of the subjects. Such differences did not appear.

As displayed in Table 3, both variables determined the extent to which subjects were active in extracurricular activities ($r = .60, .53$), were active as university leaders ($r = .43, .41$), and as sorority leaders ($r = .41, .33$). Also the esteem of the subjects depended somewhat on age and semesters of education (r's ranged from .20 to .28 with NP, NO, NS, and NR). Finally, motivation to be a sorority leader tended to decline with semesters of education and age ($r = -.23, -.17$), although motivation to be a university leader remained constant as the women matured.

Between two-fifths and half the variance of these two variables were associated with Factor II, University Experience and Activity, while a small portion of the remaining common variance was associated with Factor I, Sorority Leadership Potential.

b. Extracurricular, university, nonsorority activity per semester (UA). While 32 per cent of the variance in extracurricular activity at the university was associated with Factor II, University Experience and Activity, another 10 per cent was associated with Sorority Leadership Potential. The fairly high correlations between age, semesters of education, and activity probably occurred because the new student has to devote time and energy in adjusting to college life and in learning the opportunities available before being able to engage freely in extracurricular activities. Also, the development of interests in particular activities may require further maturation.

The correlations of .62 with university leadership activity, .36 with sorority leadership activity, and the factor loading of .31 on Sorority Leadership Potential tended to support one of Stogdill's (17) generalizations that over a wide range of situations, leaders tend to participate more in activities than nonleaders. More specifically, the relation between Sorority Leadership Potential and university participation corroborated a similar finding by Williamson for Minnesota students (20).

Sheer experience in university activities appears to make subjects more active and effective as LGD participants, since UA correlated significantly with all measured aspects of discussion performance (LA, LB, PN, EF). The common factors of Verbality, Ascendancy and Sociability, and Feminine Inefficiency did not account for these correlations, since UA was unrelated to assessments outside the discussion situation. Discussion performance per se appears associated with past activity in nonsorority university groups.

c. University leadership activity per semester (UL), appeared to be associated somewhat more with University Experience and Activity ($r = .44$) than with Sorority Leadership Potential ($r = .32$).

Similarly to a study by Williamson and Hoyt (21) which suggested that personality differences were more likely to distinguish student university leaders from nonleaders than sorority or fraternity leaders from nonleaders, we found that while students high in Ascendance and Sociability and in Freedom from Neuroticism tended to engage in university leadership activity, no personality factors discriminated sorority leaders from nonleaders as well.

In the same way as UA, university leadership was significantly associated with all measured aspects of leaderless group discussion performance per se.

d. Sorority leadership activity per semester (SL) was primarily a function of Factor I, Sorority Leadership Potential,

and, to a lesser extent, of Factor II, University Activity and Experience. It appeared to be independent of measured situational and personality test factors. Whether a member actually held various positions of leadership in her sorority appeared unrelated to her Ascendance and Sociability, Verbality, Freedom from Neuroticism, etc. As was suggested before, sorority status, as such, was more dependent on temporary, situational, or nonpersonal factors such as years of education and age, rather than on consistent personal characteristics.

We suggest that compared with sorority status, university status was more associated with personality characteristics because esteem in the university group—the extent to which a woman as a person could contribute to the university group—was a more important determinant of her election to university positions of worth than was her corresponding sorority esteem in her election to positions of worth in the sorority. (As will be noted later, sorority positions, as a whole, may be of lower worth to the members than university positions. There may be less concern over who obtains sorority positions on the LSU campus.)

The evidence to support the validity of the hypothesis is slight but in the right direction. We had no measure of campus esteem corresponding with our indices of sorority esteem. However, we did have campus measures of ability which could be assumed to be associated with variations in esteem. While point average (PA) correlated .27 with UL, it correlated only .22 with SL. Numerical aptitude (AQ) correlated .15 with UL and .07 with SL. Verbal aptitude (AL) correlated .08 with UL and −.08 with SL. Success and activity in leaderless discussions (LA, LB, PN, EF) correlated significantly with UL but not SL.

The specific correlation of .23 between UL and SL tended to support the conclusion that some consistent differences in tendency to engage in leadership activities exist across different situations, although the consistency is much less than would be suggested in the popular literature on leadership.

While university leaders reported themselves as being somewhat socially bold (r=.27), sorority leaders reported themselves as submissive (r=−.29). If these correlations are not a result of random fluctuation, we may account for the results by arguing that university-wide women leaders have to exhibit some aggressive behavior, especially when competing with male students for various leadership offices. Within the sorority, the ideal or norm for women, especially Southern women, is overt social submissiveness. This cultural ideal may exert an influence on the personality required of any woman who would be a sorority leader. Outwardly, at least, social boldness must be repressed by the aspiring sorority officer if she is to be popular, accepted, and elected by her sorority sisters to positions of leadership.

e. The correlations of .27 and .22 between *scholastic point average* (PA) and university leadership and sorority leadership activities, and the correlations of .29, .24, .32, and .22, respectively, with the esteem ratings, NP, NO, NS, and NR, are in line with expectations and Stogdill's (17) conclusion that leaders tend to be higher in achievement than nonleaders. It was interesting to note, however, that overt social adjustment correlated .33 with academic achievement—contrary to popular notions about the social inadequacies of the good student.

f. Socioeconomic status, as measured in this analysis, appeared to be of little importance in increasing our understanding of leadership.

2. *Peer Ratings (of Own Sorority Sisters)*

a. The first four peer ratings (NP, ND, NS, and NR) were similar in factorial composition. All had high loadings on Factor I, Sorority Leadership Potential, and all had slight loadings on University Experience and Activity. Some differences exist, most of which appear reasonable. The purest measure of Sorority Leadership Potential was the nomination for a position as a representative of the sorority (NR). It had a loading of .82 on

Factor I. The least pure of the four was the nomination as organizer (NO), which had a loading of .72 on Factor I and a much lower loading of .19 on Factor III, Ascendance and Sociability. The relatively low loading of NO on Sorority Leadership Potential was probably a function of the cultural ideal of feminine social submissiveness described earlier.

These various measures of esteem were more highly correlated with various measures of ability and personality than was the measure of sorority leadership status (SL). However, the differences were not so great as had been expected.

b. Visibility in the sorority (VS) appeared to be associated with Sorority Leadership Potential ($r = .54$), and to a lesser extent with Ascendance and Sociability ($r = .19$). Even in this setting, with the cultural restriction placed on the leader's boldness, it appeared fairly obvious that persons high in leadership potential—potential to attain leadership status—are more familiar, better known, and more highly *visible* to their sorority sisters than persons low in each potential. In this, as in many other situations, the potential leader must and does actively participate in various activities which make her well known to others.

Elsewhere (4) the senior author has suggested that status and visibility would be more highly associated than esteem and visibility. The present study did not support the validity of this proposition, for visibility was slightly less correlated with SL than with NP, NO, NS, and NR. Possibly, some measurement contamination was responsible for this outcome.

c. Overt social adjustment, popularity, or *being well thought of socially in the sorority* (AD) was primarily related, as expected, to Sorority Leadership Potential ($r = .54$). It had less than expected association with Freedom from Neuroticism ($r = .14$).

For reasons the reader is now familiar with, there appeared to be a slight tendency for socially bold girls to be considered somewhat maladjusted ($r = -.18$). Girls with high social interest (ZS) were likewise considered so ($r = -.24$).

It appears that the sorority leader faces a peculiar role conflict. To lead, she must exhibit initiative. Yet, the exhibition of too much initiative in sororities is out of line with the norms for Southern women. Further exploration of how sorority leaders solve this particular conflict may provide a fruitful example of the more general conflict that most leaders face. As Hemphill (12) and Smith (16), among others, have pointed out, leaders usually offer to their followers both promises of reward and threats of requiring excess energy expenditure, loss of individualism, and so forth. The adequacy of a leader may depend primarily on his resolution of this role conflict.

Others in the sorority may be in an even greater dilemma. Thus, the seriousness of this conflict to the girl with initiative but without the esteem needed to be sorority leader is summarized by the following hypothesis:

A socially bold sorority member, a member with a great deal of initiative and ascendancy, who lacks esteem will be highly maladjusted socially.

To test this hypothesis an index was derived based on the difference between a subject's standard score on social boldness (ZA) and her standard score on the sum of the four peer ratings of esteem, NP, NO, NS, and NR. This index correlated −.68 with overt social adjustment (AD), strongly confirming our expectation. The index also correlated −.36 and −.16 with ZF and ZO, friendli-

ness and objectivity, the two best measures of Freedom from Neuroticism.

3. *Self-Ratings*

a. Self-esteem (NI), an important determiner of leadership behavior (4), appeared to be factorially complex. Only 10 per cent of its variance was associated with actual Sorority Leadership Potential. Five per cent was associated with Feminine Inefficiency, 3 per cent with Ascendance and Sociability, 3 per cent with Motivation to Attain Leadership Status and 2 per cent with Verbality. The results appear to comprise a consistent picture which suggests that self-esteem may represent a compromise between beliefs about one's actual leadership potential and desired leadership potential.

b. Motivation to attain university leadership status (UM) was significantly related to motivation to increase sorority status ($r = .55$) and self-esteem ($r = .21$). Either motivation was fairly independent of many of the other assessment variables, or else the index used was not a very relevant measure of motivation. We choose the latter, more conservative interpretation. It is possible that a more indirect or projective procedure would have been useful. The high reliability of UM and SM suggests that something was measured consistently—what it was, was not revealed by the factor analysis.

c. Motivation to attain sorority leadership status (SM) correlated significantly with lack of university experience ($r = -.23$) and lack of numerical aptitude ($r = -.22$), in addition to its association with motivation to be a university leader. It also tended to be more negatively associated with various indices of leadership status, actual and potential, than was UM.

More value was attached by these subjects to university nonsorority offices than to sorority positions, for the mean index of desire for sorority office holding was 3.3 while it was 3.7 for holding campus positions. The difference (almost a whole standard deviation) was significant at the 1 per cent level of confidence.

The factorial composition of SM and the percentage of variance in SM accounted for by each factor was as follows:

Motivation to Attain Leadership Status, 23%; Lack of University Experience and Activity, 3%; Lack of Ascendance and Sociability, 2%; Feminine Inefficiency, 2%; and Lack of Group-Process Thinking, 2%.

4. *Paper-and-Pencil Test Scores*

Since the ACE and Guilford-Zimmerman Temperament Survey scores were included as reference tests and were not of central interest to the study, they will not be considered here.

5. *Situational Tests*

a. The factorial composition of the amount of successful leadership activity displayed during the first discussion (LA) turned out to be surprisingly complex. At the same time, all but 20 per cent of the consistent variance of LA was accounted for.

Twenty-six per cent of the variance in LA was associated with Verbality. This confirmed a number of other studies which suggested the importance to discussion leaders of a verbal productivity or verbal fluency factor (22). Specifically, as in an earlier study by Wurster and Bass (22), LA correlated more highly with verbal aptitude ($r = .35$) than with numerical aptitude ($r = .17$). The correlation of .77 with discussion participation was in line with all studies on the subject (1, 2, 3, 15); as explained earlier, this correlation is partly a func-

tion of definition. The highest correlation of LA with peer ratings was with NS—nominations for public speaker ($r = .36$).

Fifteen per cent of the variance in LA was associated with Factor III, Ascendance and Sociability. The correlation of .37 with ZA itself suggested that social boldness was the common element involved. Moreover, we note that the next-to-highest correlation between LA and the peer ratings was with NO, nominations for organizer. These results tend to confirm an analysis of ROTC cadets by Bass and Coates which indicated that LA tended to forecast peer ratings of tendency to initiate structure and interaction but not the tendency to be considerate of subordinates—two of the independent leader-behavior factors isolated by Fleischman (10).

Six per cent of the variance was associated with Sorority Leadership Potential. Keeping in mind our discussions of the cultural norm of social submissiveness for Southern women—especially in the sorority situation—we suggest that these results were probably lower than would have been found for male subjects. While LA was not of much use by itself as a forecaster of Sorority Leadership Potential among Southern sorority women, it correlated .36 with UL, university leadership activity (in contrast to .10 with sorority leadership activity), for as pointed out earlier, ascendancy of women is probably more acceptable on campus than in the sorority.

Four per cent of the variance of LA was a function of Intellectualism and 3 per cent was a function of University Experience and Activity. This last result suggests that LA is related slightly to mere exposure to group activity and experience per se in groups.

b. Although they have no obvious practical application, the results based on the amount of leadership activity displayed in the second discussion (LB) may have theoretical significance. There was a doubling in the variance unique to discussion success in the second discussion and an equivalent loss in variance associated with the factors of Verbality, Sorority Leadership Potential, and University Experience and Activity. Only the amount of variance associated with Ascendance and Sociability remained the same for LB and for LA. We can offer no reasonable explanation at this time for this interesting but perplexing event.

c. Discussion participation or *attempted discussion leadership activity* (PN) was greater, the greater the Verbality and Ascendance and Sociability of the participants. But it had less in common with Sorority Leadership Potential, as such, than successful leadership activity (LA). In other words, there appeared to exist an *X* quantity which when present among socially bold and verbal participants enabled them to be successful discussion leaders and to some extent to have sorority leadership potential, but when absent enabled them only to attempt with much less success to gain leadership status. To search for this *X* quantity, an index of the aborted or unsuccessful leadership behavior exhibited by participants of the first discussion was calculated by subtracting each subject's standard score of successful leadership activity (LA) from her standard score of attempted leadership activity (PN). Inspection of the correlations between aborted leadership status (PN-LA) and the other assessment variables suggested that the *X* quantity might have been objectivity or freedom from hypersensitivity (ZO), which correlated −.44 with

aborted leadership activity. It might also have been cooperativeness or freedom from criticalness or intolerance (ZP), which correlated −.32 with aborted leadership activity.

d. The results concerning discussion efficiency are fairly clear yet somewhat comic in their implications and relations with stereotypes about women as conversationalists. A correlation of −.56 was found between the femininity of participants and the efficiency of their discussion! Apparently the way to obtain an effective discussion among women is to select women with masculine temperament who have had some university-wide extracurricular experience and activity.

e. Probably the most surprising result of the correlational and factorial analysis was the tendency of the stimulated recall variables to be fairly independent of other measures and to a great extent of each other. In general, most of the reliable variance in thought processes was independent of behavior and quite unique to the specific thought processes involved. However, what communality was observed appeared quite meaningful and useful. Two and possibly three thought-process factors emerged to account for most of the common variance found among the stimulated recall variables. These were: Critical, Relevant Thinking; Group-Process Thinking; and possibly Withdrawal-from-the-Field Thinking.

VI. SUMMARY

Data on 41 variables were collected for 140 sorority women representing seven sororities. The five types of data included: (*a*) biographical information, (*b*) peer ratings (of own sorority sisters), (*c*) self-ratings, (*d*) paper-and-pencil test scores, and (*e*) situational test scores.

Primary interest was focused on increasing our understanding of the various situational test procedures employed and situational and personality factors associated with leadership among sorority girls.

Leadership was defined as a phenomenon in which one group member's behavior was directed toward the goal of changing the behavior of another member or members. The leadership potential of the girls was assessed for three different situations: in nonsorority university activities, in sorority activities, and in initially leaderless discussions. On-campus leadership potential was estimated from campus leadership status or campus positions of worth held by the subjects. Sorority leadership potential was determined on the basis of esteem ratings of sorority sisters and from leadership positions held. Discussion leadership potential was gauged in terms of the extent to which each subject was judged by two observers as having exhibited successful leadership activity.

The matrix of intercorrelations among the 41 variables was subjected to a multiple centroid factor analysis using a group clustering method as a computational short cut.

As a result of these correlational and factorial analyses, the propositions listed below concerning leadership and associated concepts of importance such as participation, esteem, and status were substantiated to some degree. Because of the exploratory nature of this study, these conclusions, unless supported by other inductive or deductive evidence, should be considered tentative or sug-

gestive. In evaluating the evidence, it may be helpful to keep in mind that a correlation of .21 is significant at the 1 per cent level and a correlation of .16 is significant at the 5 per cent level of confidence for 140 cases.

A. Biographical Information

1. Older sorority women with more university experience are more active in extracurricular pursuits ($r = .60, .53$), are higher in university and sorority leadership status ($r = .43, .41, .41, .33$), tend to be more esteemed by their sorority sisters ($r = .20$ to $.28$), and tend to be less motivated to be a leader in their sororities ($r = -.23, -.17$).

2. Both university and sorority leaders tend to participate in more extracurricular activities than nonleaders ($r = .62, .36$).

3. Women with a previous history of extracurricular interest and activity tend to be more active and effective in initially leaderless group discussions ($r = .32$).

4. Personality differences tend to be more discriminating among university leaders and nonleaders than among sorority leaders and nonleaders. Women higher in university leadership status tend to be more socially bold ($r = .27$), emotionally stable ($r = .21$), and active and effective in leaderless discussions ($r = .36$).

5. Sorority leadership status tends to be slightly less associated with various measures of ability than does university leadership status.

6. A low positive correlation ($r = .23$) exists between university and sorority leadership status.

7. Sorority leaders must conform to some extent with the cultural norm that women be socially submissive. The same requirement does not apply to women campus leaders.

B. Peer Ratings (of Own Sorority Sisters)

1. Peer ratings of sorority esteem provide a pure measure of leadership potential. Almost all their reliable variance is associated with Sorority Leadership Potential.

2. Esteem is slightly more associated with personal characteristics than is sorority status, although esteem and status are highly correlated.

3. Highly visible sorority members are of high Sorority Leadership Potential ($r = .54$) and tend to be slightly Ascendant and Sociable ($r = .19$).

4. Visibility in the sorority does not correlate, as expected, more highly with status than it does with esteem.

5. Sorority women who are overtly socially adjusted tend to be high in Sorority Leadership Potential ($r = .54$), objective ($r = .41$), friendly ($r = -.39$), less socially bold ($r = -.18$), and less socially interested ($r = -.24$).

6. A socially bold sorority member who lacks esteem tends to be highly maladjusted socially.

C. Self-Ratings

1. Self-esteem appears to be a compromise between beliefs about actual leadership potential and desired leadership potential. Leaders, masculine efficient women, socially bold women, women more motivated to attain leadership status, and more verbal women are higher in self-esteem.

2. Sorority members tend to be more motivated to attain university leadership status than sorority leadership status.

D. Situational Test Scores

1. Variations among individuals in success as a leader in an initially leaderless discussion are a function of Verbality

($r = .51$), Ascendance and Sociability ($r = .39$), Sorority Leadership Potential ($r = .24$), Intellectualism ($r = .21$), and University Experience and Activity ($r = .18$).

2. Attempted leadership activity in a leaderless discussion is a function of Verbality ($r = .45$) and Ascendance and Sociability ($r = .39$).

3. Aborted or unsuccessful leadership activity in a leaderless discussion is greater among hypersensitive ($r = -.44$) and critical, intolerant sorority women ($r = -.32$).

4. The efficiency of initially leaderless group discussions tends to be lower, the more feminine in temperament the women participants ($r = -.56$) and the less university experience they have had ($r = .28$).

REFERENCES

1. BASS, B. M. An analysis of the leaderless group discussion. *J. appl. Psychol.*, 1949, **33**, 527-533.
2. BASS, B. M. Situational tests: I. Individual interviews compared with leaderless group discussions. *Educ. psychol. Measmt*, 1951, **11**, 67-55.
3. BASS, B. M. Differential response patterns in initially leaderless discussions related to discussion and external status. *Amer. Psychologist*, 1951, **6**, 511. (Abstract)
4. BASS, B. M. A psychological theory of leadership. Baton Rouge: Louisiana State University, 1953. (Mimeographed)
5. BASS, B. M., MCGEHEE, C. R., HAWKINS, W. C., YOUNG, P. C., & GEBEL, A. Personality variables related to leaderless group discussion behavior. *J. abnorm. soc. Psychol.*, 1953, **48**, 120-129.
6. BASS, B. M., & WURSTER, C. R. Effects of company rank on LGD performance of oil refinery supervisors. *J. appl. Psychol.*, 1953, **37**, 100-104.
7. BLOOM, B. The study of conscious thought processes by the method of stimulated recall. Mimeographed manuscript, Univer. of Chicago.
8. CATTELL, R. B. *Description and measurement of personality*. Yonkers-on-Hudson: World Book Co., 1946.
9. CATTELL, R. B. *Factor analysis*. New York: Harper, 1951.
10. FLEISCHMAN, E. Leadership climate and supervisory behavior. Unpublished doctoral dissertation, Ohio State Univer., 1951.
11. GUILFORD, J. P., & ZIMMERMAN, W. *Manual of the Guilford-Zimmerman Temperament Survey*. Beverly Hills, Calif.: Sheridan Supply Co., 1949.
12. HEMPHILL, J. Leadership in small groups. Mimeographed manuscript, Personnel Research Board, Ohio State Univer.
13. KLUBECK, S., & BASS, B. M. Differential effects of training on persons of different leadership status. *Hum. Relat.*, in press.
14. MCCLELLAND, D. C. Personality. New York: William Sloane, 1951.
15. PETERMAN, J. N. Verbal participation, its relation to decision satisfaction and leader function in decision-making groups. Paper read at Midwest. Psychol. Ass., Chicago, April, 1949.
16. SMITH, M. Control interaction. *J. soc. Psychol.*, 1948, **28**, 263-273.
17. STOGDILL, R. M. Personal factors associated with leadership. A survey of the literature. *J. Psychol.*, 1948, **25**, 35-71.
18. SUPER, D. *Appraising vocational fitness*. New York: Harper, 1949.
19. WHERRY, R. H. & FRYER, D. H. Buddy ratings: popularity contest or leadership criteria? *Personnel Psychol.*, 1949, **2**, 147-160.
20. WILLIAMSON, E. G. The group origins of student leaders. *Educ. psychol. Measmt*, 1949, **11**, 603-612.
21. WILLIAMSON, E. G., & HOYT, D. Measured personality characteristics of student leaders. *Educ. psychol. Measmt*, 1952, **12**, 65-78.
22. WURSTER, C. R., & BASS, B. M. Situational tests: IV. Validity of leaderless group discussions among strangers. *Educ. psychol. Measmt*, 1953, **13**, 122-132.